Music Research Forum

MUSICKING ECO-LOGICALLY: TOWARDS AN ENVIRONMENTALLY INCLUSIVE PRACTICE

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Abstract

The effect of the human species on Earth has carried such a heavy impact in the past century and a half that a growing number of scientists have correlated this time period to a geological age called the Anthropocene. As a result of this revelation of human impact, many have created new methods to examine our behaviors and inventory the effects of humankind on the natural world. Ecomusicology is one such realm that offers a variety of critical inquiries into relationships between music, musicians, sound, culture, politics, and the environment. Applying an ecocritical lens to the practice of site-situated sound art is particularly illuminating, as it reveals an emerging handful of artists whose practices engender relationships between music and the environment that effectively decentralize the human. Through analyzing site-specific compositions by sound artists Walter Branchi and Scott Smallwood, I illustrate what I call an eco-logical form of musicking, a mode of musicking that is environmentally inclusive and emphasizes material interconnectedness. Going forward, I discuss how eco-logical musicking is informed by improvisation, ecocentric philosophy, and agent-environment cognition. I outline my mode of analysis, through which I demonstrate that this approach to musicking fundamentally reorganizes the roles of composer and listener to deemphasize the human as singular and central. Through my analysis, I propose that eco-logical musicking expands concepts of a musicking system to highlight environmental impact and material interdependencies.

Keywords

Walter Branchi — Scott Smallwood — Ecomusicology — Musicking — Sound Art — Environmental Ethics — Anthropocentrism — Ecocentrism

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Introduction

The effect of the human species on Earth has been so significant that many scientists correlate this time period with a geological age known as the Anthropocene. The Anthropocene, which translates from Greek to "recent age of man," has exhibited notable changes in oceanic, atmospheric, and nutrient cycles as a result of human activity, changes which have in turn negatively impacted our social, political, and economic spheres.[1] As we take inventory of our repercussions on the environment, it seems necessary that we re-examine our adopted tools and methods for socio-ecological decision making. Many scholars have re-evaluated value systems that influence our environmental decisions, proposing alternative frameworks for problem-solving. Some environmental ethicists, such as Holmes Rolston III, point to anthropocentrism—a human-centered value system—as problematic. They argue that anthropocentrism hinders biodiversity and conservation by

[1] Mark A. Maslin and Simon L. Lewis, "Defining the Anthropocene," *Nature* 519 (2015): 171.

reinforcing human exceptionalism.[2] Others, such as William Grey, posit that a position of anthropocentrism is actually the best approach to environmental ethics. Grey reasons that a non-anthropocentric view reaches beyond what humans can recognize, and therefore attempts to solve environmental issues from this perspective are ineffective. Instead, he proposes that environmental action is best advanced from a human perspective, for it is from humanity's moral horizon that we best navigate our world.[3] However, Grey's proposal reflects what critical theorist Rosie Braidotti calls a "Universal Eurocentric Humanist" view of the world, one that reifies human/nature binaries and maintains human primacy.[4] According to Braidotti, dualisms and views of human superiority in regard to nature enable our habits of environmental dissociation and support the narratives of dominance that facilitated many of the geo- and socio-political problems we find ourselves in now.

Those who problematize anthropocentrism refer to ecocentrism as a viable alternative. Ecocentrism interprets the world as a holistic interrelated whole, proposing that all species have intrinsic value. It decentralizes human primacy in favor of a non-hierarchical position that includes all environmental participants and emphasizes interconnectedness to support equality and sustainability.[5] Taking a cue from the growing field of ecomusicology, whose theorists frequently analyze music through philosophies of ecology, I have discerned an emerging musical practice that embraces principles of ecocentrism. Among site-specific sound artists, a few composers are intentionally environmentally inclusive. Their creative approach transforms their role as singular authors to environmental co-operators. The effect of this shift decentralizes the human to render compositions that arise out of interconnected environmental elements, human and non. I call this method "eco-logical musicking." Going forward, I illustrate how the concept of eco-logical musicking is informed by frameworks of improvisation, ecocentrism, and agent-environment cognition. I propose parameters of analysis for eco-logical musicking and apply this mode of analysis to site-specific works by composers Walter Branchi and Scott Smallwood. Observing the approaches of these composers reveals their sensibility of ecocentrism enacted through eco-logical musicking; this sensibility, in turn, engenders a broader perspective of environmental inclusion and human interdependency.

Ecomusicology and Ecological Sound Art

Music has a long history of depicting humanity's reverence and fear of nature, and some people propose that music may actually embody the affects and vitality of nature itself. Ecomusicology in particular focuses on convergences of nature, music, and culture, with frequent emphasis on issues of environmentalism. Earlier scholarship correlates music and environmentalism, such as Mitchell Morris's 1998 analysis of the work of John Luther Adams.[6] However, ecomusicology was not featured as a coalesced field until the Summer 2011 issue of the *Journal of the American Musicological Society*. In this issue, editor Aaron S. Allen qualified the term ecomusicology in the introduction and presented a compendium of essays representing the emerging field. Allen later co-edited a more substantial anthology, *Current Directions in Ecomusicology: Music, Culture, Nature*, which features more recent scholarship analyzing nature-focused music through the lens of

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[2] Helen Kopnina et al., "Anthropocentrism: More than Just a Misunderstood Problem," *Journal of Agricultural and Environmental Ethics* 31, no. 1 (February 2018): 110.

[3] Kopnina, "Anthropocentrism," 110.

[4] Rosi Braidotti, *The Posthuman* (Malden, MA: Polity Press, 2013), 52.

[5] Patrick Curry, *Ecological Ethics: An Introduction* (Malden, MA: Polity Press, 2006), 44.

[6] Mitchell Morris, "Ecotopian Sounds; or, The Music of John Luther Adams and Strong Environmentalism," in *Crosscurrents and Counterpoints: Offerings in Honor of Bengt Hambræus at 70*, ed. Per F. Broman, Nora A. Engebretsen, and Bo Alphonce (Göteborg, Sweden: Göteborgs Universitet, 1998), 129.

environmental philosophies such as ecofeminism and conservation.[7] However, barring the occasional review of works by composers such as John Luther Adams or R. Murray Schafer, much of ecomusicology focuses on pieces that create interpretations or imitations of nature—music that is separate from the environment it references.

However, there is a growing group of sound artists that feature the environment as a prominent participant in their work. Their sound art is made up of elements from the environment or embedded within it, thus directly incorporating the environment in their work. This sub-genre has become so populated that researcher and sound artist Jonathan Gilmurray advocated for a cohesive name: ecological sound art.[8] To create ecological sound art, some artists ground their work in acoustic ecology. Attributed to the World Soundscape Project, acoustic ecology is a methodology that uses soundscape to know an environment's behavior and evaluate ecological balance between humans and the rest of the biosphere.[9] Other projects that intentionally address environmental issues through sound art include Annea Lockwood and her sound maps of the Danube, Housatonic, and Hudson Rivers; David Dunn and his compositions featuring field recordings of ants, beetles, and bats; and Leah Barclay and her various sound installations that use hydrophones to amplify the sonorous life of the aquatic world.[10] However, the way in which environmental sound artists figure themselves in the production of their work varies. Are they documentarians? Is their sound art a product of an ecosystem in its entirety? Or do they frame their work as a self-authored composition? Among those composing site-situated sound art—which I define as music that arises out of specificities of place and the situated encounters in that place—a growing number of artists position themselves as environmental co-operators. And it is in the work of these practitioners that I observe an ecocentric, or eco-logical, approach to musicking.

Eco-Logical Musicking

To generate the term eco-logical musicking, I drew from traditions established by musicologist Christopher Small and by improviser and scholar George Lewis. Small formalized the phrase "musicking" to shift the word "music" from a noun to a verb. This move directs our attention to the dynamic process of music-making, as opposed to the fixed object of music. The semantic transformation also proposes that meaning in music arises out of its making. According to Small, musicking includes the composer, performer, and listener, which he frames as an ecosystem of its own: "musicking is an activity in which all those present are involved and for whose nature and quality, success or failure, everyone present bears some responsibility."[11] Small mainly focused on human participants with the term, but I couple the phrase with the expression "eco-logical" to encourage a materially-expanded concept of musicking.

The term "eco-logical" references a precedent set by George Lewis, who crafted the phrases "Afrological" and "Eurological" to describe different practices of improvisation. Each phrase points to "musical belief systems

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[7] *Current Directions in Ecomusicology: Music, Culture and Nature*, ed. Aaron S. Allen and Kevin Dawes (New York: Routledge, Taylor & Francis Group, 2017). This anthology is an examination of the complex perspectives that comprise ecomusicology. It features twenty-two authors including Sabine Feisst, who presents an ecocritical analysis through an ecofeminist lens in her essay "Negotiating Nature and Music through Technology: Ecological Reflections in the Works of Maggi Payne and Laurie Spiegel" (245), and Alexandra Hui, who examines aural autonomy through conservation ethics in her essay "Aural Rights and Early Environmental Ethics: Negotiating the Post-War Soundscape" (176).

[8] Jonathan Gilmurray, "Ecological Sound Art: Steps towards a New Field," *Organised Sound* 22, no. 1 (April 2017): 32–41.

[9] Kendall Wrightson, "An Introduction to Acoustic Ecology," *Soundscape—The Journal of Acoustic Ecology* 1, no. 1 (Spring 2000): 10. The World Soundscape Project was founded by R. Murray Schafer, and included Barry Truax, Hildegard Westerkamp, Howard Broomfield, Bruce Davis, and Peter Huse. It was based at Simon Fraser University. Bernie Krause and David Monacchi are also contributors to this field.

[10] This is a small sample of a rich community of sound artists that compose work with, and about, the environment. Others include Garth Paine, Andrea Poli, Cheryl E. Leonard, and Ximena Alarcon. For an introduction to environmentally focused sound art, see *Environmental Sound Artists: In their Own Words*, ed. Frederick Bianchi and V. J. Manzo (New York: Oxford University Press, 2016).

[11] Christopher Small, *Musicking: The Meanings of Performing and Listening.* (Wesleyan University Press, 1998), 9.

and behavior which… exemplify particular kinds of musical logic" to inform a certain type of improvising.[12] The phrases situate musicking in a social and cultural location; an Afrological form of improvisation draws upon the African American experience, while a Eurological improvisation embodies a Eurocentric experience. In a similar vein, my introduction of the term "eco-logical musicking" points to musicking informed by understandings of ecology. Specifically, I refer to frameworks of ecology that understand an ecosystem (biotic or abiotic) to be a complex, generative, interconnected system of many parts. It is defined within a parameter that indicates its own totality and recognizes the interrelatedness of its components. It also has the ability to display emergent properties: the combined effect of individual agents to produce a whole greater than the sum of its parts. The frameworks I refer to include ecocentric philosophies that understand an environment—encompassing all its inhabitants—to be an emergent, diverse, interrelated body. I also incorporate theories of agent-environment cognition to situate meaning-making for participants. These theories propose that knowledge-making is an environmentally-embedded phenomenon that emerges out of the various ecosystems within which we are located. Thus, a composer whose work I identify as eco-logical knows their musicking to be a dynamic, generative system of multiple bodies, with meaning evolving out of participants' engagement. Their musicking is an interaction of heterogeneous groupings within a dynamic totality. The many participants are mutually impactful, and the musicking has the potential to display emergent qualities.

Correlating eco-logical musicking with improvisation also engages existing paradigms that experiment with non-hierarchical forms in musicking, as well as dialogues that address expressions of self, community, collaborative action, and distributed creativity, which I will briefly visit in the following section. However, to summarize here, improvisation provides a reference point for immanently dynamic musicking through which "structure, meaning, and context arise from the domain-specific analysis, generation, manipulation, and transformation of sonic symbols."[13] Eco-logical musicking simply extends the musicking domain to include non-human elements. And, much like Afrological improvisation's practice of constructing its sonic symbolism around views of social instrumentality, such as race advancement and resistance to dominant white American culture, eco-logical musicking invites us to challenge notions of human supremacy and recognize environmental interconnectedness.[14]

Logics of Ecology

My understanding of environment as a complex system is partly informed by American author, scientist, and environmentalist Aldo Leopold (1887-1948). In contrast with the backdrop of increasing industrialization, expanding capitalism, and faster modes of media distribution, Leopold was a rural inhabitant and a strong advocate for environmental ethics in early- to mid-twentieth century America. From the setting of his farm in Baraboo, Wisconsin, he wrote the influential *A Sand County Almanac*, a landmark collection of essays that expressed his views on conservationism, ethics, and public policy in relation to the environment. The text was composed to advance the idea that human ethics should also encompass the natural world in which we live and its struggle for existence. The essay that most strongly moved this goal forward is "The Land Ethic," in which Leopold observes that an ethic evolves around the premise that "the individual is a member of a community of interdependent parts."[15] By extension, he reasons that a land ethic "simply enlarges the

[12] George Lewis, "Improvised Music after 1950: Afrological and Eurological Perspectives," in *Audio Culture: Readings in Modern Music*, ed. Christoph Cox and Daniel Warner (A&C Black, 2004), 274.

[13] Lewis, "Improvised Music after 1950," 274.

[14] Lewis, "Improvised Music after 1950," 275.

[15] Aldo Leopold, "The Land Ethic," in *Environmental Ethics: An Anthology,* ed. Andrew Light and Holmes Rolston (Malden, MA: Blackwell Publishing, 2012), 39.

boundaries of the community to include soils, waters, plants, and animals, or collectively, the land."[16] In this statement we see a burgeoning concept of ecocentrism emerge, one that recognizes an ecosystem as an interdependent, heterogeneous community, of which the human is simply one part.

Another philosophy of ecology from which I draw is Deep Ecology, which indirectly advanced Leopold's definitions of an environmentally inclusive community. Deep Ecology was formally presented by Norwegian environmental philosopher Arne Næss in 1972 against the backdrop of the seminal United Nations Conference on the Human Environment in Stockholm, Sweden. In response to increasing destruction of the environment caused by industrialization and capitalism, Næss expanded Leopold's initiative to evolve society from consumption-oriented ethics to a biotic-inclusive value system. To achieve this, Næss built a decision-making framework to apply to environmental issues based on a cosmology of unity, one that presumes the universe is constituted by dynamic, interdependent entities and their relationships.[17] A deep approach to ecology features humans as one component of a totality that is an ongoing field of creation. It understands the world as intersecting and interdependent, with no "firm ontological divide in the field of existence."[18] Deep Ecology sees an ecology as an "enveloping community, a place in space, a process in time, [and] a set of vital relationships."[19] Through Leopold's and Næss's conceptions of ecology, I define a musicking ecology as evolving and generative, a broad and varied community of sound producers and influencers, of which the human component is just one part.

In addition to environmentally-focused definitions of ecology, I also draw from theories of ecological and enactive cognition that propose that knowledge-making is a complex system of many parts, including the environment in which a body is located. An ecological approach to cognition emphasizes active, contextualized adaptation that engages an environment in itself as part of knowledge-formation.[20] Enactive cognition also proposes that how and what we know is relationally brought forth in conjunction with environmental interaction. It emphasizes a being's mode of enjoining with the environment and sensorimotor patterns of perception and action.[21] Much like Næss's theory that posits that elements of an ecosystem, and the ecosystem itself, emerge out of interconnected complexity, ecological and enactive cognition theory see knowledge- and self-making as environmentally entangled and co-constitutive processes.

Enactive cognition and complex systems have been invoked to interpret forms of improvisation by scholars such as Edgar Landgraf, who framed improvisation as "a complex feedback process that builds forms out of contingent elements by relating present decisions to past decisions."[22] Musician and theorist Bennett Hogg is more specific in his explanation of musical-improvisation-as-complexity, describing it as a process of "complex and mediated sets of relationships between physical sounds, perceptual systems, personal associations, culturally significant gestures, bodily and emotional responses, observed actions and reactions,

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[16] Leopold, "The Land Ethic," 40.

[17] Warwick Fox, "Deep Ecology: A New Philosophy of our Time?" in *Environmental Ethics: An Anthology,* ed. Andrew Light and Holmes Rolston (Malden, MA: Blackwell Publishing, 2012), 253.

[18] Arne Næss, "The Deep Ecological Movement: Some Philosophical Aspects" in *Environmental Ethics: An Anthology,* ed. Andrew Light and Rolston Holmes (Malden, MA: Blackwell Publishing, 2012), 262.

[19] Holmes Rolston, "Value in Nature and the Nature of Value" in *Environmental Ethics: An Anthology,* ed. Andrew Light and Holmes Rolston (Malden, MA: Blackwell Publishing, 2012), 145.

[20] Eric F. Clarke, *Ways of Listening: An Ecological Approach to the Perception of Musical Meaning* (New York: Oxford University Press, 2005), 17.

[21] Evan Thompson, *Mind in Life: Biology, Phenomenology, and the Sciences of Mind* (Cambridge, MA: Belknap, 2010), 23.

[22] Edgar Landgraff, "Improvisation: Form and Event," in *Emergence and Embodiment: New Essays on Second-order Systems Theory*, ed. Bruce Clarke and Mark B. N. Hansen (Durham, NC: Duke Univ. Press, 2009), 191.

and culturally learned expectations."[23] These interpretations, among others, led me to apply elements of ecological and enactive theories of cognition to recognize the role that environmental contingency contributes to self-making for the performers and composers, as well as for the music, in eco-logical musicking. If we understand meaning-making to be environmentally contingent, then by extension we also understand a musical work's meaning to be environmentally entangled. In an eco-logically musicking engagement, a listener's conception of the music somatically arises along with a music's contingent development. In addition, applying agent-environment cognition theory to analyze eco-logical musicking allows for the subject to be located in an ecocentric experience. This placement of the subject supports human interdependence within the musical environment, countering the concern that ecocentrism may eliminate human perspective.[24]

By synthesizing these understandings of ecology and applying them to modes of musicking, a dynamic and inclusive practice of eco-logical musicking begins to emerge, one that emphasizes entangled, diverse musicking bodies of self-defined, yet flexible, parameters. An eco-logical musicking expands our sense of community to include all Earth inhabitants. Participants' knowledge of themselves—and of the music—as interdependently co-constructed emerges out of environmentally interconnected meaning-making.

Eco-logical Musicking Applied

To demonstrate my methodology, I will analyze works by Walter Branchi and Scott Smallwood that I posit exhibit eco-logical musicking. These works were site-situated, in that each piece arose in relation to its environment, and the composers demonstrated an a priori understanding that their musicking was environmentally entangled. The composers intentionally expanded their understanding of a musicking ecosystem to include the sounds, behaviors, and characteristics of the environment in which their work was embedded. They also employed distinct strategies to illuminate these components. As a result, these works effectively challenged notions of authorship and decentralized human production, which enabled them to emphasize environmental inclusivity and inter-material relationships. To highlight the presence of eco-logical musicking, I considered how each of these works engaged with the following:

- A philosophy of ecocentrism that includes understandings of diverse systems, holism, and interconnectedness.
- Inclusion of an environment's existing sonic output, such as acoustic and resonant potentials, animal life, or ambient noise and human activity
- Adaptation to environmental characteristics and their behaviors
- Narratives and cultural histories embedded in the place

Walter Branchi

> The music of belonging is a music that goes beyond the concept of the world centered exclusively on anthropocentric values, but is based on ecocentric values (relating to the Earth). It does not necessarily have to be performed in specifically constructed, reserved, protected spaces, nor does it need those alternative spaces, such as airports, stadiums or churches. It is a music interwoven into a network of interdependent relationships with the world outside and therefore can happen anywhere. And when it does, when it reveals itself, it does not favor a unique and solitary relationship with man.[25]

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[23] Jakub Ryszard Matyja and Andrea Schiavio, "Enactive music cognition: background and research themes," *Constructivist Foundations* 8, no. 3 (2013): 354.

[24] Clarke, *Ways of Listening*, 22.

[25] Walter Branchi, *Canto Infinito: Thinking Environmentally*, ed. Michela Mollia, trans. Erika Pauli Bizzarri (Red Hook, NY: Open Space, 2012), 71.

Italian composer and improviser Walter Branchi (b. 1941) is a pioneering figure in electronic music. He was a member of the improvisation collective Gruppo di Improvvisazione Nuova Consonanza from 1966 to 1975, and he founded the electronic music studio Studio R7 in Rome as well as LEMS (Laboratorio Elettronico per la Musica Sperimentale / Electronic Studio for Experimental Music) in Pesaro. He is the author of *Electronic Music Technology* and worked with UNESCO to publish *Intervals and Tuning Systems* and *Toward Oneness*. Branchi teaches composition at the Conservatory of Santa Cecilia in Rome and the Conservatory G. Rossini in Pesaro, and he has held residencies at academic institutions internationally. He is also a gardener, a role that influences his conception of music and nature. Branchi is one of the leading experts in the world of roses, known for creating the Branchi Rose. His approach to nurturing this given strain of rose is to understand historical traditions and conditions in which the strain flourishes. From his practice as a composer and a gardener, he frames himself as a cultivator, stating that he does not create from nothing, but nurtures conditions for an idea, or seed, to become a musical composition, or flower.[26]

His compositions combine the electronic and acoustic, and he typically writes for specific places, spaces, or times of day. He characterizes his compositions as pieces that grow from the space and time of the moment and aspires that they be inseparable from that same moment. He conceives of music as arising with its surrounding environment and believes that the audience, composer, and environment all play an active role in a work. Branchi's self-assignment as environmental collaborator forced him to reconsider the meaning and methods of composition. As a result, he rejects narrative to instead favor a music without reference points, repetition, or themes. To accomplish this, he employs a systems approach to composition that gives rise to a music that is tied to its context, shifting a composition from "story to place, from time to space."[27] Composition, for Branchi, becomes the design of sound, and a system, that results in the sum of relevant properties assumed in a given time.

Ecstatic Static was a concert of Branchi's work, presented at the New York Friends Meeting House (a Quaker Meeting House) in New York City on 9 October 2008 (Figure 1).[28] The concert featured three works that are examples of Branchi's eco-logical musicking: *Sensibile, Ora, di Terra,* and *Shapes of the Wind (Volturnus – Favonius – Aquilo – Auster).* Inspired by the intensity of silent presence that occurs during a Quaker Friends meeting, Branchi set out to create a presentation of works that wove together the characteristics of a Quaker meeting, the sounds of the Quaker Meeting House, the dynamic cityscape which surrounded it, and the sounds he composed. To accomplish his goal, Branchi took several strategic steps. He discreetly hid speakers for the electronic components of the musicking throughout the Meeting House so that their sounds became part of the fabric of the room. Listeners were instructed to sit in silence in the square of pews, which mirrored the communally silent practice of a Quaker Friends meeting. The sounds of the cityscape were included in the performance through opened windows, which located the listener in the ongoing activity of New York City, as well as within the Meeting House. The sounds of the meeting space were folded into the compositional process through strategies of amplitude dynamics, and real-time processing of existing sounds in the room.

The first work in the concert, *Sensibile*, which means "sensitive," was composed of faint, ambient electronic sounds that were "non-invasive" and almost "impalpable."[29] At this quiet amplitude, the electronic components of the composition interwove with the sounds of the room, as well as with the sounds of the city beyond the room. The sound sources blended to such a degree that the origins of each component of the soundscape were nearly indeterminable. The unobtrusive amplitude of the piece also played an important role, as it inspired the intense contemplative listening practice for the audience customary to the Quaker House location.

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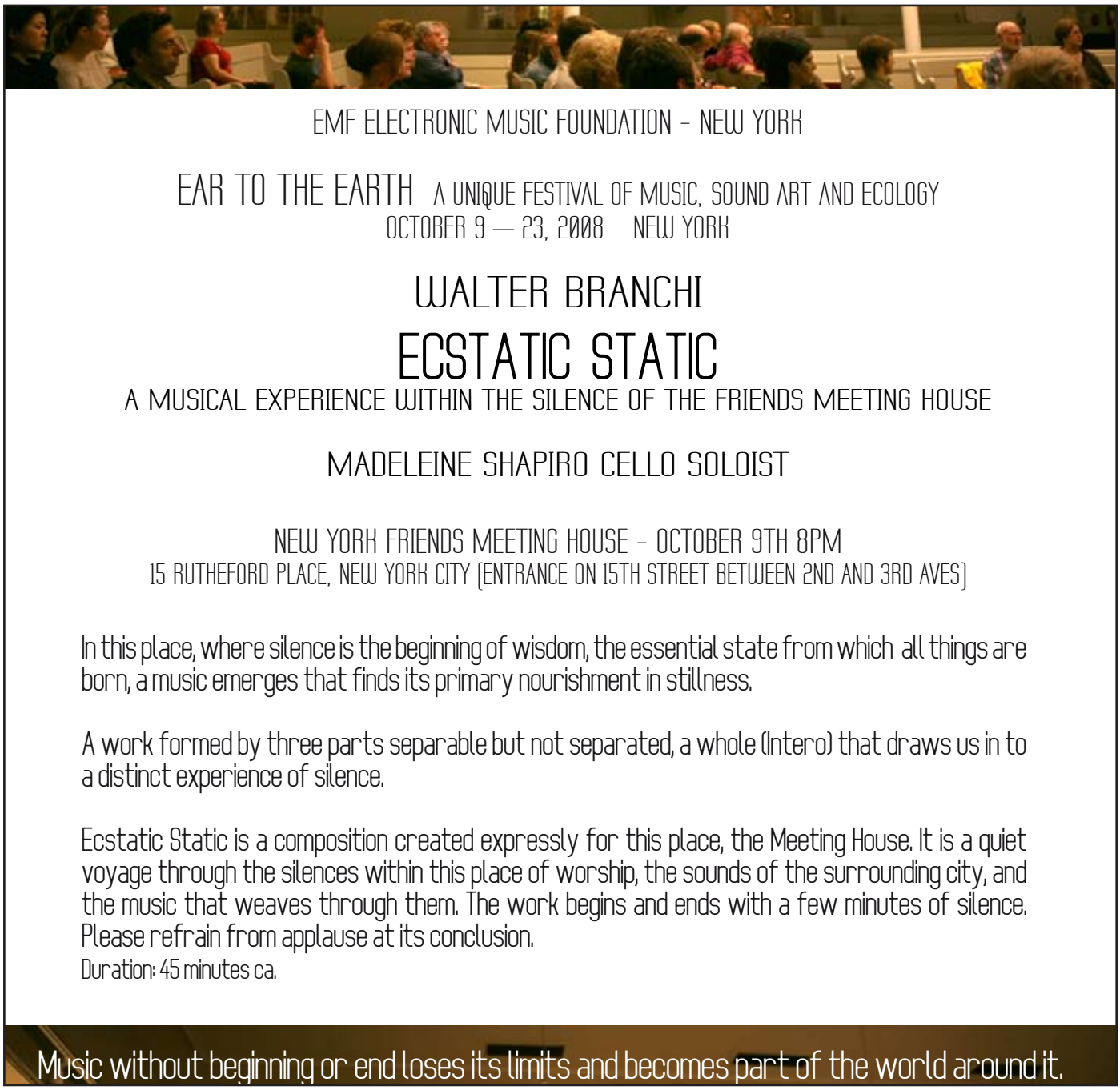
[26] Branchi, *Canto Infinito,* 31.

[27] Branchi, *Canto Infinito,* 42.

[28] On 9 October 2008 I attended Branchi's performance of *Ecstatic Static* at the Friends Meeting House in New York City. The following analysis is based on my experience of the presentation.

[29] Joel Chadabe, "Ecstatic Static," *Arts Electric*, Electronic Music Foundation, 2008. Accessed August 2014. http://www.emf.org/artselectric/stories/081006_branchi.html.

Figure 1: Advertisement for Walter Branchi's *Ecstatic Static*, presented at the New York Friends Meeting House in New York City on 9 October 2008 by the Electronic Music Foundation as part of their Ear to the Earth festival.



Ora, di Terra, which translates to "Now, of the Earth," also called for electronic sounds. The sounds were composed to transform and perform with existing sounds in the room, rendering a generative sonic entanglement with the smallest shift of anyone in the space, as well as creaking pews and walls, rain on the roof, car horns, and laughter or chatter from passersby that floated in through the open windows.

In *Shapes of the Wind (Volturnus–Favonius–Aquilo–Auster)*, for cello and electronics, the cellist (Madeleine Shapiro) performed from the corner of the room, which displaced the human performer from her typical central spotlight. This invited the listener to engage more deeply with the symbiotic system Branchi composed for cello and electronics as the musicking entangled with the environment.

The composition performed by the cellist was an "expression of a homogenous system of intervals" that created "a tonal continuum in which the cello becomes the soul–and the breath–of the composition" via the differentials created by subtle bowing techniques, inspired by the wind.[30]

Branchi's *Ecstatic Static* falls well within the parameters of an eco-logical mode of musicking. He describes his music as part of an expanded ecosystem of emergent complex systems, and he applied these concepts to his compositions through a number of strategies. Each section of the composition was a system that functioned as a node of sonic activity that could interact with the existing network of sounds in the Meeting House. The low amplitude and sound diffusion of the entire work afforded sonic entanglements that blurred the cause and origin of each given sound, and it obscured human-composed components. Authorship distinctions were further challenged in *Ora, di Terra*, which folded existing sounds of the space into the electronically produced aspects of the piece. Sounds that entered through opened windows also served to expand the parameters of the musicking ecology. Branchi explicitly challenged notions of performer/composer as central figure through the decentralized cello performer in *Shapes of the Wind,* as well as through the use of hidden speakers for the entire presentation. Lastly, Branchi folded cultural history and behaviors of the Quaker traditions into *Ecstatic Static* by encouraging participants to sit in the square of the pews in a posture of contemplative quiet during the performance, which was further supported by the quiet dynamics of the work. All of these strategies combined to create an eco-logical mode of musicking that expanded concepts of the musicking ecosystem, blurred distinctions of authorship, and highlighted interconnectedness. The ability of Branchi's system (his term for his part of the composition) to flexibly improvise with all sounds present acknowledged the generative and emergent aspects of the arising composition and invited listeners to engage their own meaning-making processes.

Scott Smallwood

Sound artist Scott Smallwood also demonstrates eco-logical musicking in his site-situated piece, *Coronium 3500 (Lucie's Halo).* Smallwood is an associate professor of composition at the University of Alberta. He also performs as a percussionist, pianist, and electronic musician, utilizing laptops, synthesizers, noise generators, and handmade electronic instruments. He collaborates as one half of the duo Evidence (with Stephan Moore), and he has performed and collaborated with many other artists and musicians, including Mark Dresser, Yanira Castro, The Jen Mesch Dance Conspiracy, Pauline Oliveros, Seth Cluett, and Matmos. He has written works for small and large ensembles, including recent works for Continuum Ensemble of Toronto, the Nash Ensemble of London, and the New York Virtuoso Singers. As a sound artist, improvisor, and composer, he designs installations and performances, creating work from a practice of listening, field recording, and improvisation.

Coronium 3500 (Lucie's Halo) was commissioned by Caramoor Center for Music and the Arts for their group sound art exhibition, *In the Garden of Sonic Delights,* held from 7 June through 4 November 2014, and again for a similar time frame the following year. *Coronium 3500* was a multi-voiced, generative, site-specific sound installation, which was powered—and in part composed by—solar-powered electronic sound-making devices. Installed in a tree-lined field at Caramoor, the twelve instruments were mounted on poles that formed an inner ring of four and outer ring of eight. All of the electronic instruments were circuits driven by solar panels that determined their output, producing what Smallwood calls "solarsonics," or sounds dynamically powered and activated by light.[31] The eight voices of the outer circle were capable of sound in low light, and the songs they projected changed drastically with the changing light of the day. The remaining four voices comprising the inner circle were only active in direct sunlight. The voices behaved

[30] Chadabe, "Ecstatic Static," http://www.emf.org/artselectric/stories/081006_branchi.html.

[31] Scott Smallwood, "Coronium 3500: A Solarsonic Installation for Caramoor," Proceedings Paper, NIME, 2016. Accessed March 2018. http://www.scott-smallwood.com/pdf/coronium-nime2016.pdf.

differently because of the type of solar panels Smallwood chose to power the instruments. Instead of panels that buffered, or stored power, for steady long-term distribution, he used panels that output voltage in real-time, which allowed the instruments' frequencies and amplitudes to incorporate variables in direct relation to the incoming light. A separate light-controlled resistor sent another stream of information of incoming light to the instruments' circuits to determine tempo (See Figure 2 for video capturing sounds of the instruments).

The resulting generative composition featured melodic patterns based on an equal-tempered pentatonic scale that used 3500 Hz as a reverse fundamental. Each circuit, or instrument, performed independent parts that included small-stepped motifs and short, repeated intervals among other patterns to create eight unique melodies. Smallwood designed the circuits while listening to field recordings he gathered at the installation site. This approach allowed him to create melodies and timbres in dialogue with the existing busy soundscape of birds, insects, leaves, wind, frogs, and other components of the ecosystem. Through this process, Smallwood designed instruments that produced one of two types of voices: square waves that produced bird-like chirps or frequency-modulated sounds that resembled the buzz of insects.

Figure 2: Video capturing sounds produced by instruments in *Coronium 3500* by Scott Smallwood.
Video recorded by Suzanne Thorpe, 7 June 2014.

Smallwood also engaged with the site's local history by referencing Lucie Rosen in the piece. Lucie and her husband Walter built Caramoor, and Lucie, one of three influential theremin players in the 1930s and 1940s, founded the music program that continues at Caramoor today. To invoke her presence in the piece, Smallwood embedded a motive of Lucie's theremin performance into one of the melodic patterns produced by electronic instruments, found on a recording called *Gigolette* performed by Elliot Lawrence and his orchestra.[32]

[32] *Gigolette* was recorded by Elliot Lawrence and his band, featuring Lucie Rosen, in late 1948 or early 1949, and released on Columbia records as a 78 RPM.

When Smallwood set out to compose *Coronium 3500*, he articulated four main goals that illustrated an intention to create an expanded musicking ecosystem that recognized emergent complexity and environmental entanglement:

> the piece should respond directly to the varying light levels in perceivable ways and should celebrate full direct sunlight, whisper at dusk, and sleep at night; it should have interactive components that could be discovered by visitors; it should sound like it belongs, and should work with the natural soundscape of the site; it should celebrate the life and art of Lucie Rosen.[33]

For Smallwood, this piece was about interdependency, highlighting the effects of one entity upon another. To achieve his goals, Smallwood designed a system of sounds that interacted with the behaviors and sounds of the greater environment to produce a dynamic, emergent composition. His instruments performed variables in frequency, amplitude, and rhythm in direct relationship to the behavior of the sun. If the day was cloudy, or if trees threw shade, the piece was quiet and subtle. When the sun was bright, the instruments sang a loud chorus, as the piece was "intended to celebrate the sun, or be elusive, as the sun can be."[34] The intensity of *Coronium 3500* also mirrored the activity of birds and insects in the surrounding forest, whose vocal activity corresponded to the sun's dynamism. The chorus effect of electronic music, birds, and insects was further amplified in Smallwood's choice of wave forms that resembled the animal world's sonorities and produced interesting melodic entanglements. In addition to behavioral and environmental contextualization, Smallwood acknowledged local history and narrative by including a reference to Lucie Rosen in the musicking. In these ways, he succeeded in decentralizing authorship and drew attention to the dynamic, complex environment as a whole. As he explains, "in one sense, this is a composition that interacts with its environment (and with people), and in another, it is a reminder of the careful balance of nature, and how fleeting and fragile it can be."[35] Listeners had the opportunity to wander in the field amidst the instruments, which invited an active sensorimotor engagement with the work in its environmental entirety and encouraged participants to directly hear, and feel, the fleeting yet impactful changes in their surroundings.

An Eco-logical State of Mind

I began my introduction to an eco-logical mode of musicking by noting that we now live in an age commonly referred to as the Anthropocene. The term points to the notable impact of humans on the Earth, as well as its possible cause, anthropocentrism. Through anthropocentrism, humanity "others" that which is not itself. This perspective diminishes and excludes the non-human, rendering entities outside of its center as separate and inferior.[36] As an antidote, some environmental ethicists have invoked ecocentrism, a view that positions humans as one part of a holistic, interconnected whole. However, other environmental philosophers worry that ecocentrism is an impossible position to achieve, believing it would require humans to reach beyond their available purview. But is that true? Could it be, instead, that ecocentrism simply asks us to recalibrate how we situate ourselves, as one being among a multitude of beings and things? With eco-logical musicking, we have the opportunity to consider this proposition through an experience that situates humans (composer and listener alike) as just one component of an expanded community of participants whose combined enaction create a composition.

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[33] Smallwood, *Coronium*, http://www.scott-smallwood.com/pdf/coronium-nime2016.pdf.

[34] Scott Smallwood, interviewed by Suzanne Thorpe, Skype, 13 February 2015.

[35] Smallwood, interviewed by Suzanne Thorpe, 2015.

[36] Val Plumwood, "Paths Beyond Human-centeredness: Lessons from Liberation Struggles," in *An Invitation to Environmental Ethics* ed. Anthony Weston (New York: Oxford University Press, 1999), 83.

Branchi's *Ecstatic Static* and Smallwood's *Coronium 3500 (Lucy's Halo)* invited us to locate ourselves within a broad, interconnected environmental community and offered us an alternative to our anthropocentric habits. They demonstrated an eco-logical mode of musicking, as informed by threads of environmental philosophy and theories of agent-environment cognition. Through distinct strategies, Branchi and Smallwood positioned their systems of sound within an environment with the intent to entangle with the many existing sounds and behaviors. Their works featured an a priori understanding of an expanded musicking ecosystem that decentralized the human, encompassed material agency, and recognized interconnectedness. As a result, participants were afforded the opportunity to experience a comprehensive, pluralistic, multilayered reality that was dynamic, shifting, interdependent, and free of anthropocentric primacy. By adopting techniques that I identify as eco-logical musicking, Branchi and Smallwood enacted a lived experience of a realigned self, one that is, as Branchi notes, "capable of including man in a joint relationship with nature, where he acknowledges the intrinsic value of all forms of life and their relationship of interdependence."[37]

About the author

Suzanne Thorpe is a composer, performer, researcher, and educator. She creates site-situated sound compositions that use a variety of media and technology, and she performs electroacoustic flute, expanded with digital and analog electronics. Thorpe's work draws upon traditions of acoustic ecology, soundscape, land art, and improvisation, and her research intersects feminist materialisms, systems theory, and environmental ethics. She is also a Deep Listening instructor, having studied in depth with American Composer and Deep Listening Founder Pauline Oliveros. Thorpe has performed and exhibited her work internationally and has a discography that features over 20 recordings. She has been the recipient of the Frog Peak Collective Award for innovative research in technology, as well as grants from Harvestworks Digital Media Foundation, New Music USA, and the MAP Fund. She is currently a Ph.D. Candidate at University California, San Diego, and co-founder of TECHNE, a national education initiative that aims to empower young women through creative-driven technology projects.

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[37] Branchi, *Canto Infinito*, 75.

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